

**AMENDMENTS**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously Amended) An optoelectronic transceiver, comprising:  
a laser transmitter  
a photodiode receiver; and  
a controller;  
wherein the controller comprises:  
memory, including one or more memory arrays for storing information related to the transceiver;  
analog to digital conversion circuitry for receiving a plurality of analog signals from the laser transmitter and photodiode receiver, converting the received analog signals into digital values, and storing the digital values in predefined locations within the memory;  
and  
comparison logic for comparing the digital values with limit values to generate flag values, wherein the flag values are stored in predefined locations within the memory during operation of the optoelectronic transceiver; and  
an interface for allowing a host to read from host specified locations within the memory, including the predefined locations in which the flag values are stored.
2. (Original) The optoelectronic transceiver of claim 1, further including:  
a cumulative clock for generating a time value corresponding to cumulative operation time of the transceiver, wherein the generated time value is readable via the interface.
3. (Original) The optoelectronic transceiver of claim 1, further including:  
a cumulative clock for generating and storing in a register a time value corresponding to cumulative operation time of the transceiver, wherein the register in which the time value is stored comprises one of the memory arrays of the memory.
4. (Original) The optoelectronic transceiver of claim 1, further including:  
a power supply voltage sensor coupled to the analog to digital conversion circuitry, the power supply voltage sensor generating a power level signal corresponding to a power supply voltage level of the transceiver, wherein the analog to digital conversion circuitry is

configured to convert the power level signal into a digital power level value and to store the digital power level value in a predefined power level location within the memory.

5. (Original) The optoelectronic transceiver of claim 4, further including:  
a temperature sensor coupled to the analog to digital conversion circuitry, the temperature sensor generating a temperature signal corresponding to a temperature of the transceiver, wherein the analog to digital conversion circuitry is configured to convert the temperature signal into a digital temperature value and to store the digital temperature value in a predefined temperature location within the memory.

6. (Original) The optoelectronic transceiver of claim 5, wherein  
the comparison logic includes logic for comparing the digital power level value with a power level limit value, generating a power level flag value based on the comparison of the digital power level signal with the power level limit value, and storing the power level flag value in a predefined power level flag location within the memory; and  
the comparison logic includes logic for comparing the digital temperature value with a temperature limit value, generating a temperature flag value based on the comparison of the digital temperature signal with the temperature limit value, and storing the temperature flag value in a predefined temperature flag location within the memory.

7. (Original) The optoelectronic transceiver of claim 4, wherein  
the comparison logic includes logic for comparing the digital power level value with a power level limit value, generating a power level flag value based on the comparison of the digital power level signal with the power level limit value, and storing the power level flag value in a predefined power level flag location within the memory.

8. (Original) The optoelectronic transceiver of claim 1, further including:  
a temperature sensor coupled to the analog to digital conversion circuitry, the temperature sensor generating a temperature signal corresponding to a temperature of the transceiver, wherein the analog to digital conversion circuitry is configured to convert the temperature signal into a digital temperature value and to store the digital temperature value in a predefined temperature location within the memory.

9. (Original) The optoelectronic transceiver of claim 8, wherein

the comparison logic includes logic for comparing the digital temperature value with a temperature limit value, generating a temperature flag value based on the comparison of the digital temperature signal with the temperature limit value, and storing the temperature flag value in a predefined temperature flag location within the memory.

10. (Original) The optoelectronic transceiver of claim 1, further including fault handling logic, coupled to the transceiver for receiving at least one fault signal from the transceiver, coupled to the memory to receive at least one flag value stored in the memory, and coupled to a host interface to transmit a computed fault signal, the fault handling logic including computational logic for logically combining the at least one fault signal received from the transceiver and the at least one flag value received from the memory to generate the computed fault signal.

11. (Currently Amended) The optoelectronic transceiver of claim 1, further including :  
control circuitry configured to generate control signals to control operation of the laser transmitter in accordance with one or more values stored in the memory; and  
control adjustment circuitry for adjusting a first control signal of the control signals generated by the control circuitry in accordance with an adjustment value stored in the memory.

12. (Currently Amended) The optoelectronic transceiver of claim 11, wherein the control circuitry generates the first control signal in accordance with a temperature.

13. (Original) The optoelectronic transceiver of claim 1, wherein the plurality of analog signals includes two analog signals selected from the set consisting of laser bias current, laser output power, and received power.

14. (Currently Amended) An optoelectronic transceiver, comprising:  
a laser transmitter;  
a photodiode receiver; and  
a controller;  
wherein the controller comprises:  
memory, including one or more memory arrays for storing information related to the optoelectronic transceiver;

analog to digital conversion circuitry for receiving a plurality of analog signals from the optoelectronic transceiver, the analog signals corresponding to operating conditions of the optoelectronic transceiver, converting the received analog signals into digital values, and storing the digital values in predefined locations within the memory; and

a memory interface for allowing a host device to read from host specified locations within the memory in accordance with commands received from [[a]] the host device.

15. (Original) The optoelectronic transceiver of claim 14, further including:

a cumulative clock for generating a time value corresponding to cumulative operation time of the optoelectronic transceiver, wherein the generated time value is readable via the memory interface.

16. (Original) The optoelectronic transceiver of claim 14, further including:

a cumulative clock for generating and storing in a register a time value corresponding to cumulative operation time of the optoelectronic transceiver, wherein the register in which the time value is stored comprises one of the memory arrays of the memory.

17. (Currently Amended) The optoelectronic transceiver of claim 14, further including:

a power supply voltage sensor coupled to the analog to digital conversion circuitry, the power supply voltage sensor generating a power level signal corresponding to a power supply voltage level of the optoelectronic transceiver, wherein the analog to digital conversion circuitry is configured to convert the power level signal into a digital power level value and to store the digital power level value in a predefined power level location within the memory;

wherein the predefined power level location is readable via the memory interface.

18. (Currently Amended) The optoelectronic transceiver of claim 17, further including:

comparison logic for comparing the digital power level value with a power level limit value, generating a power level flag value based on the comparison of the digital power level signal with the power level limit value, and storing the power level flag value in a predefined power level flag location within the memory;

wherein the predefined power level flag location is readable via the memory interface.

19. (Currently Amended) The optoelectronic transceiver of claim 18, further including

a temperature sensor coupled to the analog to digital conversion circuitry, the temperature sensor generating a temperature signal corresponding to a temperature of the optoelectronic transceiver, wherein the analog to digital conversion circuitry is configured to convert the temperature signal into a digital temperature value and to store the digital temperature value in a predefined temperature location within the memory;

wherein the predefined temperature location is readable via the memory interface.

20. (Currently Amended) The optoelectronic transceiver of claim 19, wherein the comparison logic includes logic for comparing the digital temperature value with a temperature limit value, generating a temperature flag value based on the comparison of the digital temperature signal with the temperature limit value, and storing the temperature flag value in a predefined temperature flag location within the memory;

wherein the predefined power level flag location is readable via the memory interface.

21. (Currently Amended) The optoelectronic transceiver of claim 14, further including a temperature sensor coupled to the analog to digital conversion circuitry, the temperature sensor generating a temperature signal corresponding to a temperature of the optoelectronic transceiver, wherein the analog to digital conversion circuitry is configured to convert the temperature signal into a digital temperature value and to store the digital temperature value in a predefined temperature location within the memory;

wherein the predefined temperature location is readable via the memory interface.

22. (Currently Amended) The optoelectronic transceiver of claim 21, further including comparison logic for comparing the digital temperature value with a temperature limit value, generating a temperature flag value based on the comparison of the digital temperature signal with the temperature limit value, and storing the temperature flag value in a predefined temperature flag location within the memory;

wherein the predefined power level flag location is readable via the memory interface.

23. (Original) The optoelectronic transceiver of claim 14, further including fault handling logic, coupled to the optoelectronic transceiver for receiving at least one fault signal from the optoelectronic transceiver, coupled to the memory to receive at least one flag value stored in the memory, and coupled to a host interface to transmit a computed fault signal, the fault handling logic including computational logic for logically combining

the at least one fault signal received from the optoelectronic transceiver and the at least one flag value received from the memory to generate the computed fault signal.

24. (Original) The optoelectronic transceiver of claim 14, wherein the plurality of analog signals includes two analog signals selected from the set consisting of laser bias current, laser output power, and received power.

25. (Currently Amended) An optoelectronic transceiver, comprising:

a laser transmitter;

a photodiode receiver; and

a controller;

wherein the controller comprises:

analog to digital conversion circuitry for receiving a plurality of analog signals from the laser transmitter and photodiode receiver, converting the received analog signals into digital values, and storing the digital values in predefined memory mapped locations within the ~~integrated circuit~~ optoelectronic transceiver;

comparison logic for comparing the digital values with limit values to generate flag values, wherein the flag values are stored in predefined memory mapped locations within the ~~integrated circuit~~ optoelectronic transceiver during operation of the ~~optoelectronic transceiver~~; and

a memory mapped interface for allowing a host to read from host specified locations within the ~~integrated circuit~~ optoelectronic transceiver and for accessing memory mapped locations within the integrated circuit for controlling operation of the control circuitry.

26. (Previously Amended) An optoelectronic transceiver, comprising:

a laser transmitter;

a photodiode receiver; and

a controller;

wherein the controller comprises:

memory, including one or more memory arrays for storing information related to the optoelectronic transceiver;

analog to digital conversion circuitry configured to receive a plurality of analog signals, the analog signals corresponding to operating conditions of the optoelectronic transceiver, converting at least one of the received analog signals into at least one digital

value, and storing the at least one digital value in at least one predefined location within the memory; and

a memory interface for allowing a host device to read from host specified locations within the memory in accordance with commands received from a host device.

27. (Currently Amended) The optoelectronic transceiver of claim 26, further including:

a temperature sensor coupled to the analog to digital conversion circuitry, the temperature sensor generating a temperature signal corresponding to a temperature of the transceiver, wherein the analog to digital conversion circuitry is configured to convert the temperature signal into a digital temperature value and to store the digital temperature value in the at least one predefined location within the memory;

wherein the at least one predefined location storing the digital temperature value is readable via the memory interface.

28. (Currently Amended) The optoelectronic transceiver of claim 26, wherein the analog to digital conversion circuitry is configured to receive a voltage signal from a source external to the controller, wherein the analog to digital conversion circuitry is configured to convert the voltage signal into a digital voltage value and to store the digital voltage value in the at least one predefined location within the memory;

wherein the at least one predefined location storing the digital voltage value is readable via the memory interface.

29. (Previously Amended) An optoelectronic transceiver, comprising:

a laser transmitter;

a photodiode receiver; and

a controller;

wherein the controller comprises:

memory, including one or more memory arrays for storing information related to the optoelectronic transceiver;

analog to digital conversion circuitry for receiving at least one analog signal, the at least one analog signal corresponding to operating conditions of the optoelectronic transceiver, converting the at least one analog signal into at least one digital value, and storing the at least one digital value in at least one predefined location within the memory; and

a memory interface for allowing a host device to read from host specified locations within the memory in accordance with commands received from a host device.

30. (Currently Amended) The optoelectronic transceiver of claim 29, further including:  
a temperature sensor coupled to the analog to digital conversion circuitry, the temperature sensor generating a temperature signal corresponding to a temperature of the transceiver, wherein the analog to digital conversion circuitry is configured to convert the temperature signal into a digital temperature value and to store the digital temperature value in the at least one predefined location within the memory;

wherein the at least one predefined location storing the digital temperature value is readable via the memory interface.

31. (Original) The optoelectronic transceiver of claim 30, further including control circuitry, responsive to the digital temperature value for controlling operation of the optoelectronic transceiver.

32. (Currently Amended) The optoelectronic transceiver of claim 29, wherein the analog to digital conversion circuitry is configured to receive a voltage signal from a source external to the controller, wherein the analog to digital conversion circuitry is configured to convert the voltage signal into a digital voltage value and to store the digital voltage value in the at least one predefined location within the memory;

wherein the at least one predefined location storing the digital voltage value is readable via the memory interface

33. (Currently Amended) The optoelectronic transceiver of claim [[29]] 32, further including control circuitry, responsive to the at least one digital value for controlling operation of the optoelectronic transceiver.

34. (Currently Amended) An optoelectronic transceiver, comprising:  
a laser transmitter  
a photodiode receiver; and  
a controller;  
wherein the controller comprises:

memory, including one or more memory arrays for storing information related to the optoelectronic ~~device~~ transceiver;



analog to digital conversion circuitry configured to receive a plurality of analog signals from the optoelectronic ~~device~~ transceiver, the analog signals corresponding to operating conditions of the optoelectronic ~~device~~ transceiver, convert the received analog signals into digital values, and store the digital values in predefined locations within the memory;

comparison logic configured to compare the digital values with limit values to generate flag values, wherein the flag values are stored in predefined flag storage locations within the memory during operation of the optoelectronic ~~device~~ transceiver; and

an interface configured to enable a host to read from host-specified locations within the memory, including the predefined flag storage locations, in accordance with commands received from the host;

wherein the plurality of analog signals include laser bias current, laser output power, and received power.

35. (Currently Amended) An optoelectronic transceiver, comprising:

a laser transmitter

a photodiode receiver; and

a controller;

wherein the controller comprises:

analog to digital conversion circuitry configured to receive a plurality of analog signals from the optoelectronic ~~device~~ transceiver, the analog signals corresponding to operating conditions of the optoelectronic ~~device~~ transceiver, convert the received analog signals into digital values, and store the digital values in predefined memory-mapped locations within the optoelectronic ~~device~~ transceiver;

comparison logic configured to compare the digital values with limit values to generate flag values, wherein the flag values are stored in predefined memory-mapped flag storage locations within the optoelectronic ~~device~~ transceiver during operation of the optoelectronic ~~device~~ transceiver; and

an interface configured to enable a host to read from host-specified memory-mapped locations within the optoelectronic ~~device~~ transceiver, including the predefined memory-mapped flag storage locations.

36. (Currently Amended) The optoelectronic transceiver of claim 35, wherein the analog to digital conversion circuitry is configured to convert a power level signal into a digital

power level value and to store the digital power level value in a predefined memory-mapped power level location within the optoelectronic ~~device~~ transceiver.

38: 37. (Currently amended) The optoelectronic transceiver of claim 36, wherein the comparison logic includes logic for comparing the digital power level value with a power limit value, generating a power flag value based on the comparison of the digital power signal with the power limit value, and storing the power flag value in a predefined memory-mapped power flag location within the optoelectronic device.

39: 38. (Currently amended) The optoelectronic transceiver of claim 35, wherein the analog to digital conversion circuitry is configured to convert a temperature signal into a digital temperature value and to store the digital temperature value in a predefined memory-mapped temperature location within the optoelectronic ~~device~~ transceiver, and wherein the predefined memory-mapped temperature location is readable via the interface.

40: 39. (Currently amended) The optoelectronic transceiver of claim ~~39~~ 38, wherein the comparison logic includes logic for comparing the digital temperature value with a temperature limit value, generating a temperature flag value based on the comparison of the digital temperature signal with the temperature limit value, and storing the temperature flag value in a predefined memory-mapped temperature flag location within the optoelectronic ~~device~~ transceiver, and wherein the predefined memory-mapped temperature flag location is readable via the interface.

41: 40. (Currently amended) The optoelectronic transceiver of claim 35, wherein the plurality of analog signals includes two analog signals selected from the set consisting of laser bias current, laser output power, and received power.

42: 41. (Currently amended) The optoelectronic transceiver of claim 35, wherein the analog to digital conversion circuitry is configured to receive a voltage signal from a source external to the monitoring circuitry, convert the voltage signal into a digital voltage value and store the digital voltage value in a respective predefined memory-mapped location within the optoelectronic ~~device~~ transceiver, and wherein the respective predefined memory-mapped location is readable via the interface.

43: 42. (Currently amended) An optoelectronic transceiver, comprising:  
a laser transmitter

a photodiode receiver; and

a controller;

wherein the controller comprises:

analog to digital conversion circuitry configured to receive a plurality of analog signals from the optoelectronic ~~device~~ transceiver, the analog signals corresponding to operating conditions of the optoelectronic ~~device~~ transceiver, convert the received analog signals into digital values, and store the digital values in predefined memory-mapped locations within the optoelectronic ~~device~~ transceiver;

comparison logic configured to compare the digital values with limit values to generate flag values, wherein the flag values are stored in predefined memory-mapped flag storage locations within the optoelectronic ~~device~~ transceiver during operation of the optoelectronic ~~device~~ transceiver; and

an interface configured to enable a host to read from host-specified memory-mapped locations within the optoelectronic ~~device~~ transceiver, including the predefined memory-mapped flag storage locations, in accordance with commands received from the host;

wherein the plurality of analog signals include laser bias current, laser output power, and received power.